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ABSTRACT

The major purpose of this project was to measure the effect of physical-spatial environment and personality on the conditionability of positive affective self-reference statements within a quasi-counseling interview. Two related studies were conducted: Study One--University of Bridgeport; Study Two--University of Massachusetts. Eighteen male undergraduate subjects were utilized in Study One to measure the effect of room size, personality (Factor L, 16PF) and distance interaction on conditioning. The design employed in Study One was a 2 x 2 x 3 factorial analysis of variance with repeated measures on two factors. Fifty-four male undergraduate subjects were utilized in Study Two to measure the effect of room size, personality (Factor L, 16PF) and furniture arrangement on conditioning. The design of Study Two consisted of a 2 x 2 x 3 x 2 mixed factorial analysis of variance. The results indicated that spatial environments do significantly effect the conditionability of positive effective self-reference statements. It was particularly noteworthy that in both studies it was found that room size had a significant effect in altering the conditioning of verbal responses. Implications for counseling and counselor training are discussed. (Author)

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FINAL REPORT

Project No. 1 - A - 001

Grant No. OEG - 1 - 71 - 0009 (509)

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THE EFFECT OF ENVIRONMENT AND PERSONALITY ON COUNSELING OUTCOMES

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INTRODUCTION

Problem and Objectives

Despite the massive amount of data available about the nature and outcome of the counseling interaction, many variables potentially relevant to the understanding of that process remain unknown. Much of the ambiguity in counseling research has stemmed from a combination of methodological, as well as conceptual, complexities in counseling research (Cronbach and Edwards, 1952; Kiesler, 1967; Meltzoff and Kornreich, 1970). While these inadequacies are recognized as historically present in counseling research, the authors submit that another dimension has contributed to the often equivocal evidence presented in the counseling literature. That dimension consists of a host of potentially relevant variables which have not been empirically examined in a systematic way (as part of counseling).

The major purpose of this project is to examine the influence of proxemic (spatial) variables upon the verbal behavior of the counselee. The examination of the interrelationship between proxemic variables and verbal behavior within the context of a verbal operant conditioning paradigm in a counseling analogue, provides the major focus of this study.

The specific objectives of the study were:

1. Implement an experimental model appropriate to both the conditioning of verbalizations and the counseling interview.

2. Train counselors to act as social reinforcers within the counseling interview and to offer appropriate discriminative stimuli under the conditioning paradigm.

3. Empirically examine the effect of fixed-feature, semifixed-behavior and personal space on the conditioning of verbalizations - positive affective self-reference statements.

Review of Literature

Counseling and psychotherapy has often been described in the literature as the "talking cure". Implicit in this statement is the fact that counseling, as a therapeutic endeavor, relies heavily upon verbal interchange between counselor and client to achieve the stated goals of the process. Many schools of counseling (e.g. psychoanalysis) rely solely upon the translation of feeling processes, psychodynamics and affective states into verbal-linguistic symbols as the major communication channel between counselor and client. Recently

greater attention has been paid to the importance of the conditioning-learning process within the therapeutic encounter. The advent of behavior therapy, while still dependent upon verbal communication, has reidentified its target goals as the modification of behavior (Bandura, 1969; Frank, 1969; Wolpe, 1958). To some extent, the same can be said of traditional counseling approaches if one reconceptualizes the process in terms of the verbal conditioning which occurs during the counseling hours. Skinner (1957) has offered a convincing argument for the consideration of verbal behavior as a major behavioral unit subject to the laws of conditioning. Inasmuch as counseling is a "talking cure" it would not seem inappropriate to conceptualize the process as the conditioning of verbalizations.

Although recent to the counseling literature, the importance of verbal conditioning to the counseling process has been firmly established. Williams (1964) has reviewed the conditioning of verbalizations and concludes "While research so far has dealt with rather simple tasks to study these effects, it is reasonable to assume that relevant variables discovered in the laboratory will be applicable to more complex situations....and that eventually clinical practice with a goal of behavior modification will come under the aegis of science (p. 391)." In a similar vein, Strong (1966) has reviewed studies of verbal conditioning and counseling research and concludes that such research holds great promise for further understanding both the process of counseling and the technology of the interview.

More specifically, investigators have assessed the problem of the conditioning of affective self-reference statements within the counseling interview. In a pioneering study, Greenspoon (1951) demonstrated that a subject's verbal behavior can be conditioned by utilizing minimal verbal responses, i.e. the frequency of a critical response class is contingent upon the reinforcing character of the stimulus. Greenspoon's study served as a model for subsequent verbal operant conditioning studies. Salzinger and Pisoni (1960) reported that the conditioning of the critical response class of self-reference affect statements occurred during interviews of patients in a general medical hospital. The subjects were reinforced by a minimal verbal stimuli indicating agreement after the emission of a self-reference affect statement. More recently, Hoffnung (1969), in a study comparing five forms of reinforcing stimuli on the conditioning and transfer of affective self-references in a role-played counseling interview, demonstrated that conditioning occurred in all experimental conditions.

An experimental model sufficiently similar to the counseling interview has been adapted to the conditioning of verbalization and has demonstrated that conditioning within the counseling interview is an appropriate and fruitful area of

study. Kennedy and Zimmer (1968), in a study to determine the reinforcing value of 5 commonly used stimuli, demonstrated that the frequency of self-reference statements is affected by differential responses in a quasi-counseling situation. The results further indicated that the paraphrase and the neutrally toned "mm-hmms" were more effective than the other stimuli in conditioning self-references. Pepyne and Zimmer (1969) concluded from the results of a study testing the interaction of client set, verbal responses class and sequence of conditioning on verbal behavior that a subject's responsiveness to reinforcement is due to a relationship between client set and the response class being conditioned. In a similar study Crowley (1970) found that during sessions in which subjects were indiscriminately reinforced, negative self-reference were conditioned. It was concluded that to bring about positive behavioral change in clients during counseling, specific response classes should be reinforced. Further, the results of the above three studies demonstrated that an experimental model similar to a counseling interview can be simulated and adapted to the conditioning of specific response classes. The present study considers as one of its major features, the conditioning of a specific response class, namely, positive self-reference affect statements, within a quasi-counseling interview.

The second major component of this study was the effect of the physical-spatial environment on the behavior of individuals. The literature relating to the effect of the spatial environment on behavior has been firmly established and is comprehensively reviewed in Hall (1966) and Sommer (1969). (It has been shown that the spatial environment and its effect on behavior is a complex subject, related to one's cultural background, sex, status, acquaintance, age, and the nature of the relationship between participants.) Hall (1963) has coined the term proxemics to demarcate the "study of how man unconsciously structures microspace - the distance between men in the conduct of daily transactions, the organization of space in his houses and buildings, and ultimately the layout of his towns (p. 1003)." Hall (1966) further conceptualizes the spatial environment in three parts: fixed-feature space (buildings, geographical features, etc.), semi-fixed features space (furniture, moveable objects, etc.), and personal space (the distance maintained between two persons during interaction). This study focused on combinations of semi-fixed feature, and personal space as independent variables.

A small number of investigators have examined empirically the relationship of proxemic behaviors to selected aspects of interpersonal interaction. Interpersonal proximity has been found to be related to sex of the dyadic participants (Willis, 1966, Sommer, 1959, Mehrabian, 1968); age of participants (Willis, 1966); status and relationship between participants (Mehrabian, 1968, Lott and Sommer, 1967, Willis

1966); seating arrangements and bodily orientation of participants (Mehrabian, 1968, Lott and Sommer, 1967, Sommer, 1959, 1962); eye contact, affiliation and social approval seeking (Argyle and Dean, 1965, Rosenfeld, 1965); and positive attitude toward the addressee in a dyad (Mehrabian, 1968, Little, 1965).

Although a good deal of research has been completed on many aspects of proxemic behavior, little has been aimed at the counseling interview, per se. Haase and DiMattia (1970) have demonstrated that distinct and identifiable differences exist between counselors and clients with respect to the furniture arrangements they prefer during the counseling interview. In a similar study Haase (1970) found that within the counseling interview, certain distances are more appropriate for social-conversational interactions. However, both of these studies have not directly addressed themselves to the nature of the outcome of predetermined criterion variables as a function of the spatial environment of the counseling interview.

The third major component of this study concerned itself with interaction of personality style with the proxemic and conditioning variables outlined above. It has been demonstrated that personality of the subject is highly related to the conditionability of that subject. A review of studies which bear upon this point can be found in Williams (1964). Inasmuch as personality of the subject is a critical feature of conditionability, one aspect of personality as measured by the 16PF(Cattell, 1962) has been included in this study - Factor L, Trustful Suspecting. The counseling literature would suggest this as an important feature of the counseling relationship.

Very little evidence has been accrued regarding the relationship between personality correlates and proxemic style of individuals. Hall (1966) has theorized that personality is an important determiner of proxemic style. Little empirical evidence exists to substantiate this notion. Haase (1969) has shown that a combination of personality variables as measured by the Adjective Check List can significantly predict a person's choice for interaction distance. Liepold (1963) and Williams (1963) have demonstrated that introversion-extroversion is related to proxemic style.

The studies presented in this report have been designed to assess main effects, as well as interactions between proxemic, personality and conditioning variables. Considering the conditioning of verbalization as a measure of counseling outcome, the present study assessed the effect of selected aspects of the proxemic environment and one personality characteristic on conditionability of specific verbal response classes in a counseling analogue.

METHODOLOGY
(Design I)

Subjects

Subjects in the study consisted of eighteen male undergraduate students attending the University of Bridgeport who were recruited through advertisement in the local college newspaper and through contact with professors of undergraduate courses at the University. Subjects were remunerated at the rate of $2.00 per hour for their participation.

Experimenter

An advanced graduate student in Counseling and Guidance with a Master's degree from the University of Bridgeport was specifically trained as the experimenter-counselor. The model employed to train the experimenter was similar in nature to that employed by Crowley (1970), Kennedy and Zimmer (1968), and Pepyne (1968). Essentially, the model required that the experimenter behave as a social reinforcer. The experimenter was trained to emit reinforcements, namely, "mmhmm" or "a paraphrase", upon the occurence of the critical response class (positive affective self-reference statements-PASR) emitted by the subject. He was trained to (1) discriminate between the verbal response class being reinforced and all other response classes; (2) respond with the appropriate reinforcing stimuli to that response class; and (3) make those responses in accord with the reinforcement schedule imposed by the design of the study. The specific schedule included the random emission of "mmhmm" during forty-five seconds of every minute and"a paraphrase" during fifteen seconds of every minute during the base line and extinction periods.

During the conditioning periods the reinforcements from the experimenter("mmhmm" and "a paraphrase") were contigent upon the emission PASR statements.

Initial stages of the training focused on presenting and discussing examples of the relevant response class (PASR) and all irrelevant responses. This was accomplished by both the presentation of written examples and actual responses of the experimenters to taped responses of an analogue client. Once the experimenter had adequately mastered this discrimination, the second stage of training was introduced - that of coordinating his responses with the instructions imposed by the design, i.e., with specific, timed segments of selective minutes within the conditioning paradigm. The third stage of the training procedures included extensive practice in a "live" situation in which the experimenter was allowed to practice and coordinate the necessary skills. The entire training procedure took approximately ten-twelve hours.

Apparatus

Apparatus utilized to implement this study consisted of a timing clock which demarcated a series of five-minute periods into sequences of one-minute segments which in turn were divided into periods of 45 and 15 seconds, respectively. This operated a series of colored light bulbs in the experimental room in order to cue the experimenter to the type of response he should make within a given time segment. During 45 seconds of each minute of the five-minute conditioning period, a light instructed the experimenter to emit only "mmhmm" responses to the critical response class verbalization emitted by the subject. During the remaining 15 seconds of each minute within that period, the counselor-experimenter emitted a paraphrase to the critical response emitted by the subject. A random schedule was employed by the counselor during the base line and extinction periods described in greater detail in the procedure section of this paper.

The experimental sessions were conducted in three adjoining rooms at the University of Bridgeport especially equipped for the study. The room designated as the "large room" was 224 square feet and the room designated as the "small room" was 128 square feet. Each room was equipped with two comfortable chairs and a small table to hold the microphone recording the sessions. No additional decorations or furniture were included. The chairs were positioned in such a manner that the lights cueing the counselor were not visible to the subject. A third room separating the two experimental rooms was used as a control room equipped with the apparatus described above, one-way mirrors,and tape recorders with the capability of recording a belltone at the intersection between segments of the conditioning sequence (free operant, conditioning and extinction). A trained technician operated the experimental appartus and visually monitored the process.

Criterion Measure and Scoring Procedure

The criterion measure of this study consisted of an increase in positive affective self-reference statements during the conditioning period. This verbal response class has been defined by Salzinger and Pisoni (1960)and has been successfully employed by Crowley (1970), Hoffnung (1969), Kennedy and Zimmer (1968), and Pepyne (1968). The criterion then, was the emission of positive affective self-reference statements emitted by the subject during the conditioning and extinction period of the interaction with the counselor.

Tape recordings of the free operant, conditioning and extinction periods for each subject were transcribed and every response of each subject was transferred to IBM data cards. The dependent variable for data analysis consisted of the number of verbal statements emitted by the client belonging

to the critical response class during the conditioning and extinction periods in ratio to those emitted during the free operant period. This analysis was performed by a computer program designed to analyze verbal data.

The program employed for analyzing the occurance of positive self-reference statements was that described by Zimmer and Cowls (1972). Although a complete description of the program has been provided by Zimmer and Cowls, a brief description is in order here. In essence the program relies on a series of verbal "tags" as criterion words consistent with the definition of positive affective self-reference. Each interview analyzed is compared to the criterion statements and each subject statement meeting the criterion is cumulatively recorded. The feature of eliminating problems of interjudge reliability is particularly appealing in this program.

The data generated by the program included frequency and proportion of positive affective self-reference statements, total word count per subject per interview period. An additional measure of duration of speech was obtained by timing the total number of seconds during which the subject was speaking.

Design 1

The design employed in this study was a 2 X 2 X 3 factorial analysis of variance design with repeated measures on 2 factors (Winer, 1962). Factor A (at two levels) was a personality variable. The personality variable was represented by Factor L of the 16PF (Suspectory - Trustful). Subject scores of Factor L were computed and dichotomized at the median, thus forming two groups - suspecting and trustful. Factor B (at two levels) was a room size variable. One small and one large room represented the two levels on this factor. Factor C (at three levels) was the distance factor imposed upon the interaction between counselor and client. The levels of this factor were represented by distances of 36 inches, 48 inches, and 60 inches measured from the center of the counselor chair to the center of the client chair. These distances were chosen to represent the theoretically stated distances (Hall, 1966) appropriate for differing types of social interaction.

Procedure

The interview consisted of a baseline period, six conditioning periods (small room, 36 inches; small room, 48 inches; small room, 60 inches; large room, 36 inches; large room, 48 inches; large room 60 inches) and an extinction period, each five minutes in length. The six conditioning periods were randomly ordered and as subjects were interviewed they were assigned to the appropriate order of condition-

ing. Several minutes prior to the interview the experimenter-counselor chatted with the subject in a warm up period during which he was told that he would be asked to change rooms periodically during the interview. He was also instructed to talk about "anything he liked" and told that the counselor would respond to him, but could not answer any direct questions. During the first and last five minutes of the interview period, the counselor's responses - either paraphrase or mmhmm - were on a completely random schedule (non-contingent on subject response class) controlled by the technician. During the conditioning period the counselor's responses (paraphrase or mmhmm) were contingent on the emission of PASR statements by the subject. Timing of the conditioning period was not begun until the subject emitted the first operant of the appropriate class. At the end of each conditioning period the technician signaled the counselor to stop the interview and either move to the next room or ask the subject to leave the room in order to rearrange the chairs to the appropriate distance depending on the specific random order of conditioning for that particular interview.

At the conclusion of the interview the subject responded to the 16 PF (Form C) and completed an awareness check to ascertain the degree to which he had been aware of the relevent variables of the experiment (Salzinger and Pisoni, 1960).

RESULTS
(Design I)

The primary focus of study was to assess the extent to which certain environmental conditions affected the conditionability of positive self-reference statements. Due to a peculiarity in the design, however, a two stage data analysis procedure was completed. Prior to assessing the effect of environmental conditions, it is necessary to ascertain if indeed the interviews were successful in conditioning subject verbalizations. In order to answer this question, a single classification analysis of variance was performed across the baseline--conditioning--extinction process. Conditioning scores in the analysis represent the average conditioning score per subject throughout all six room by distance combinations. Results of this analysis have been presented in Table 1.

A significant F-test reveals that differences between the three stages of the conditioning process did obtain. Scheffes post hoc comparison procedure was applied to further differentiate at what stage the differences were significant. Results of the Scheffe procedure indicate that differences between baseline and conditioning periods were not significant ($S=1.69$; Mean difference=.41; $p>.15$.). All Scheffe tests in the study reported here are performed at alpha=.15. This alpha level represents an experimentwise error rate of .15, and an approximate per comparison error rate of .07. Justification for performing Scheffes post hoc tests at higher

levels of alpha can be found in Scheffe (1959) and Meyers (1966).

Table 1

Analysis of Variance
for Conditioning Scores-Frequency

Source	df	MS	F	P
Conditioning	2	23.87	3.40	<.05
Subjects within groups	32	7.03		

Further comparison reveals that the difference between conditioning and extinction periods is significant at the above level of significance. (S=1.69; mean difference=1.76; p<.15). These results suggest that subjects were maintained at baseline levels of responding during the conditioning periods and extinguished significantly during the extinction period.

Closer examination of the raw data revealed that there seemed to be a consistent relationship between the absolute level of baseline responding and subsequent conditionability, a result often found in the conditioning literature. A Point Biserial correlation between initial level of responding during baseline period and subsequent conditioning scores was performed and yielded an r -.70. On the assumption that differing levels of responding at the baseline period were obscuring results, subjects were blocked according to their initial baseline score and a second analysis of variance performed on the conditioning scores for both the frequency and proportion. The analyses represented a 2 x 3 repeated measure design. The Between Subjects factor represented high and low baseline groups, obtained by dichotomizing scores at the median of the entire group; while the repeated measures factor again represented the conditioning process at three levels: baseline--conditioning--extinction. Results of these analyses have been presented in Table 2 and 3.

Examination of Tables 2 and 3 reveals that initial levels of responding markedly affect conditionability. Significant F-tests accrued for both main effects of Blocks, Conditioning and for the Blocks by Conditioning interaction. The most instructive information seems to lie in the B x C interaction.

Table 2

Analysis of Variance of Frequency
of PASR statements

Source	df	MS	F	P
Between Subjects 17				
Baseline Block	1	107.02	6.36	<.05
Subjects within blocks	16	16.82		
Within Subjects 36				
Conditioning	2	23.87	4.00	<.05
B x C	2	24.01	4.02	<.05
C x Ss within blocks	32	5.97		

Table 3

Analysis of Variance of Proportion
of PASR statements

Source	df	MS	F	P
Between Subjects	17	.27	13.50	<.001
Baseline Block	1	.02		
Subject within Blocks	16			
Within Subjects	36			
Conditioning	2	.030	5.00	<.05
B x C	2	.030	5.00	<.05
C x Ss within blocks	32	.006		

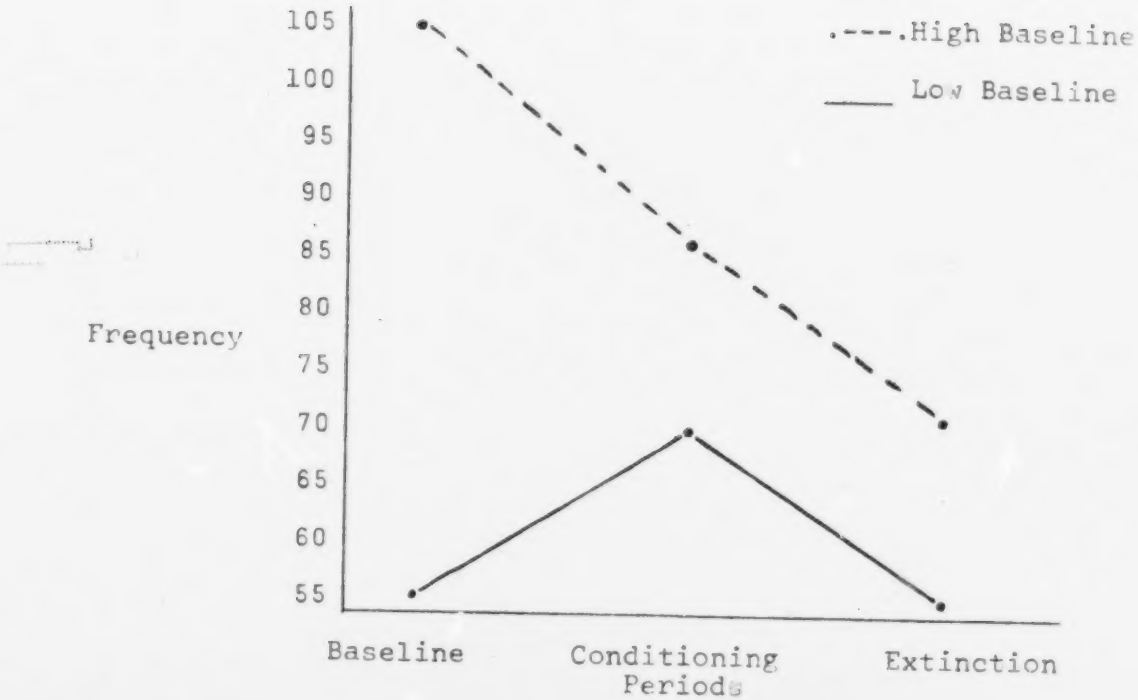

Figure 1: Interaction of Baseline Level and Conditioning for Frequency of PASR Statements

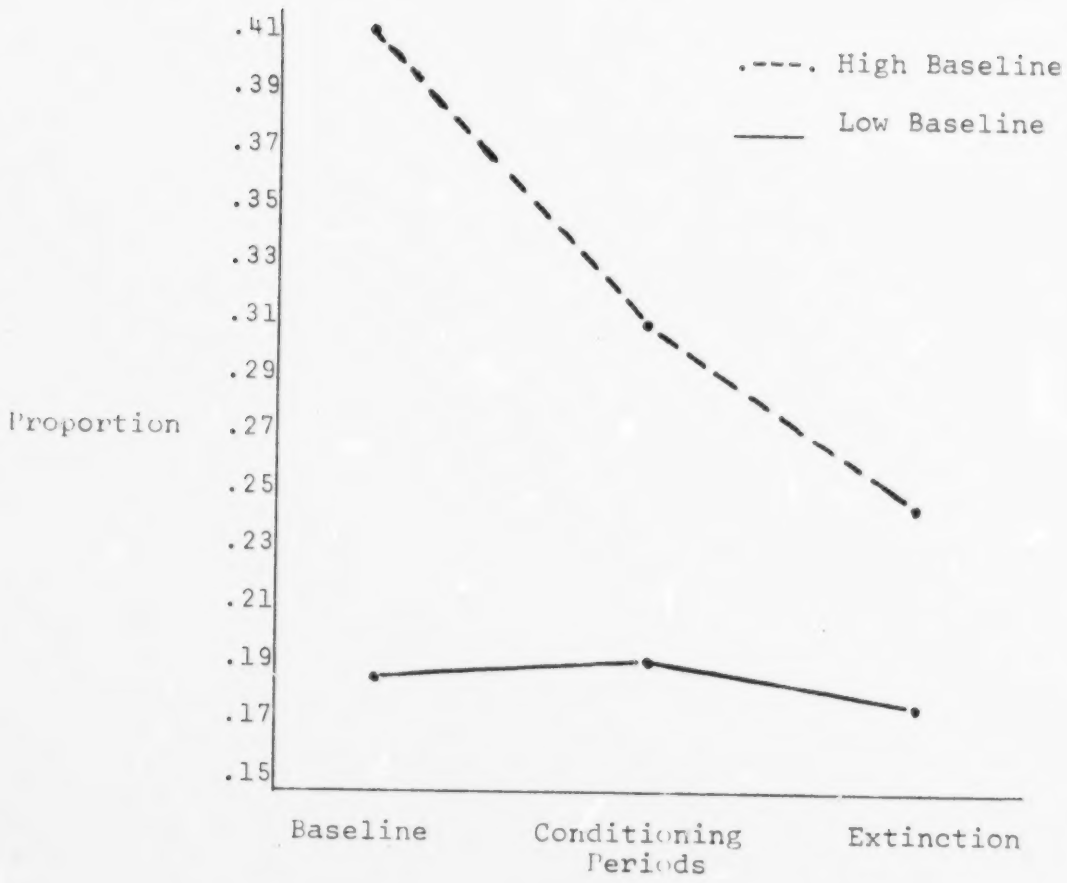

Figure 2: Interaction of Baseline Level and Conditioning for Proportion of PASR Statements

Figures 1 and 2 clearly illustrated the effect of high initial levels of responding during baseline periods and subsequent conditionability. For the high baseline group, performance across conditions steadily deteriorated, despite the conditioning paradigm. It is highly likely that subjects who are initially responding near the asymptote have little room for increases in response rate in a limited amount of time. On the other hand, subjects who enter the paradigm with low levels of response, are clearly conditioned as a consequence of the paradigm.

In general it was concluded that conditioning had taken place in the course of the study. This preliminary analysis now makes it possible to proceed to an analysis of the manner in which conditioning is effected by certain features of the spatial environment, the main purpose of the study.

As a matter of interest similar preliminary analyses were performed on two nonlinguistic variables also collected as part of the study--total word count and duration of utterance. Results of the analysis for total word count is presented in Table 4.

Table 4

Analysis of Variance of Total Number of Words

Source	df	MS	F	P
Between Subjects	17			
Baseline Blocks	1	557946.68	21.07	<.01
Subjects within Blocks	16	26476.40		
Within Subjects	36			
Conditioning	2	9658.47	.86	
B x C	2	44120.97	3.93	<.05
C x Subjects within Blocks	32	11230.01		

Table 5

Analysis of Variance
of Duration of Utterance

Source	df	SS	MS	F	P
Between Subjects	17	15.06			
Baseline Blocks	1	6.06	6.06	10.82	<.01
Subjects within Blocks	16	9.00	.56		
Within Subjects					
Conditioning	2	.11	.06	.26	
B x C	2	.55	.27	1.17	
C x Ss within Blocks	32	7.51	.23		

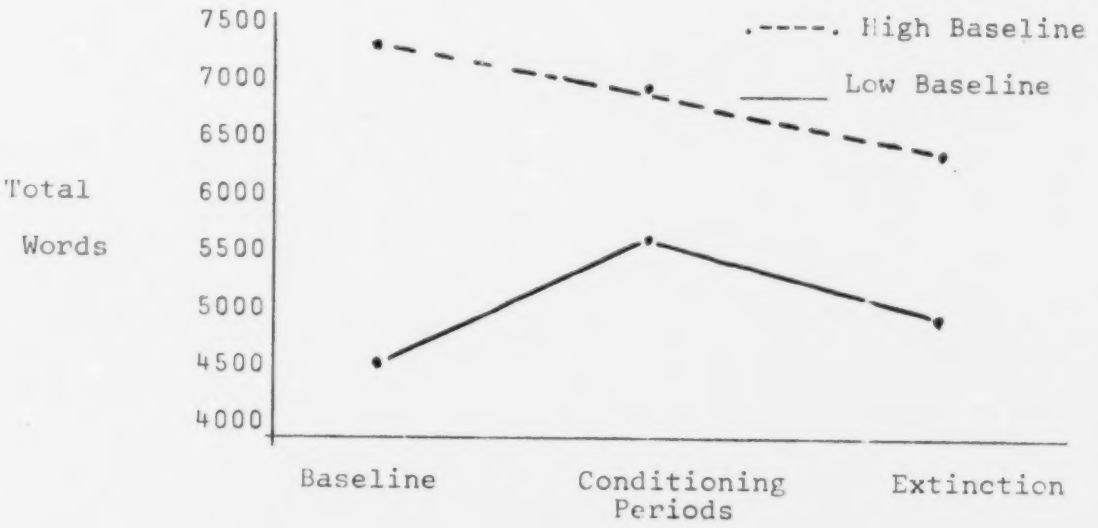

Figure 3. Interaction of Blocks by Conditioning for TNOW.

An analysis of variance on duration of utterance revealed no significant effects. Hence no generalization was effected to the duration of utterance as a function of conditioning. For total word count a pattern highly similar to the pattern which emerged for conditioning scores. Conditioning did take place, but mainly for the group whose baseline scores were at lower levels. The significant interaction found for the total word count variable strongly suggests that conditioning self-reference statements does indeed generalize to other nonlinguistic variables, a necessary result if the conditioning paradigm is to eventually have general utility as a style of therapeutic intervention.

Four 2 X 2 X 3 factorial analysis of variance designs with repeated measures on 2 factors were used to analyze the data for each dependent variable (Proportion of PASR statements; Frequency of PASR statements; TNOW; DOU). Examination of the analyses for the frequency of PASR statements and TNOW indicates that the only variable which yielded a significant difference at the $p<.05$ was Room Size. The remaining main effects (Personality and Distance) and interactions did not yield any significant differences.

Table 6

Analysis of Variance of Personality, Distance and Rooms for Frequency of PASR Statements

Source	df	MS	F	P
Between Ss				
Personality	1	3.0000	.0666	
Error	16	44.9977		
Within Ss				
Room	1	68.4815	5.0458	<.05
Pers. x Rm.	1	10.7037	.7886	
Error	16	13.5718		
Distance	2	2.5093	.1774	
Pers. x Dist.	2	5.5278	.3908	
Error	32	14.1435		
Rm. x Dist.	2	10.5648	.9608	
Pers. x Rm.xDist.	2	2.8426	.2585	
Error	32	10.9954		

Table 7

Analysis of Variance of Personality, Distance and Room for Total Number of Words (TNOW)

Source	df	MS	F	P
Between Ss				
Personality	1	151875.0000	1.8202	
Error	16	83437.1782		
Within Ss				
Room	1	231666.7037	5.5910	<.05
Pers. x Rm.	1	92693.4815	2.2370	
Error	16	41434.9468		
Distance	2	8002.2870	.2841	
Pers. x Dist.	2	7003.0883	.2486	
Error	32	28161.0706		
Rm. x Dist.	2	39637.5648	2.1482	
Pers. x Rm. x Dist.	2	50026.2870	2.7112	
Error	32	18451.4988		

Examination of the cell means of the Room size factor for the Frequency of PASR Statements and TNOW factors indicates that the subjects produced a significantly greater number of total words and PASR statements in the larger room than in the small room. In each case the cell means (PASR: large room, 9.44, small room, 7.85; TNOW: large room, 660.65, small room, 753.28) were greater in the large room than in the small room.

Inspection of the analysis of the Proportion of PASR Statements variable indicates that the interaction between the personality and distance factors was significant ($p<.05$). No significant differences were found for the main effects (Personality, Distance and Room Size) or the remaining interactions.

A graphic examination of the interaction of Personality and Distance on the Proportion of PASR Statements variable indicates that mean score for the Suspectory Groups (P_1)was slightly higher than the mean score for the Trustful Group (P_2) at the 36 inch distance. However, at the 48 inch distance the mean score for the Trustful Group (P_2) was considerably higher then that of Suspecting Group (P_1). Finally at the 60 inch distance the mean scores for both groups are approximately the same. The reversal of the mean scores between the 36 inch and 48 inch distance accounts for the significant interaction effect of this variable.

Table 8

Analysis of Variance of Personality, Distance and Room for Proportion of PASR Statements

Source	df	MS	F	P
Between Ss				
Personality	1	.0203	.3618	
Error	16	.0561		
Within Ss				
Room	1	.0203	1.3023	
Pers. x Rm.	1	.0078	1.8139	
Error	16	.0043		
Distance	2	.0076	.8351	
Pers. x Dist.	2	.0378	4.1538	<.05
Error	32	.0091		
Rm. x Dist.	2	.0045	.6000	
Pers. x R. x Dist.	2	.0069	.9200	
Error	32	.0075		

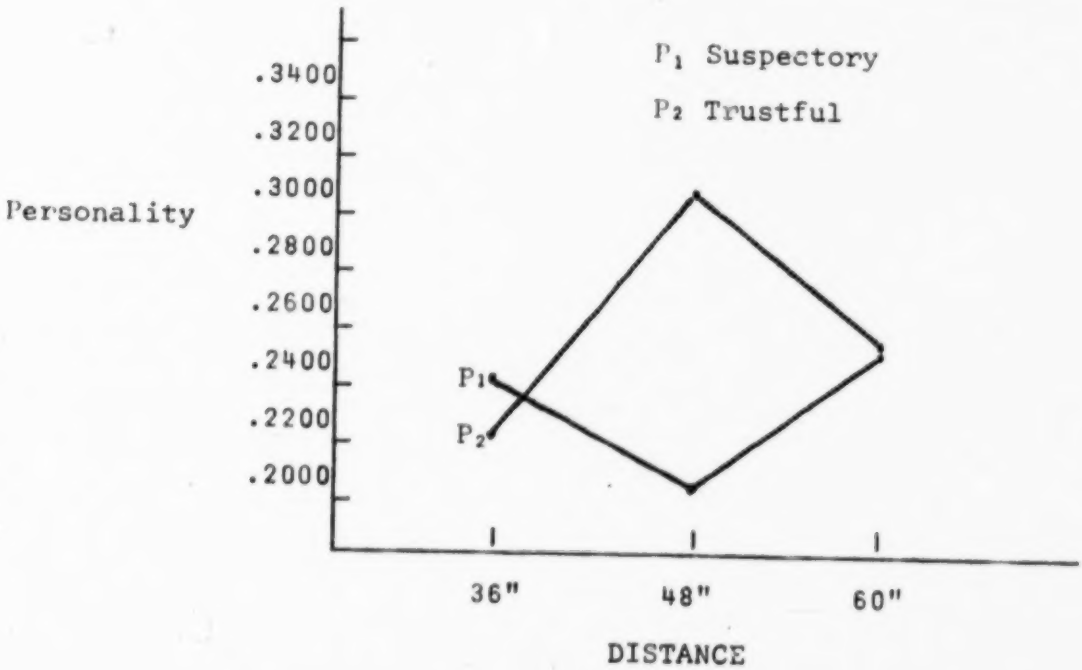

Figure 4: Interaction of personality and distance on proportion of PASR statements.

Finally, an inspection of the analysis for DOU variable indicates that no significant differences were found for the Personality, Room or Distance factors. The interaction effects were also considered nonsignificant for this variable.

Table 9

Analysis of Variance of Personality, Distance and Room for Duration of Utterance (DOU)

Source	df	MS	F	P
Between Ss				
Personality	1	1.1306	.8417	
Error	16	1.3432		
Within Ss				
Room	1	.2399	.8623	
Pers. x Rm.	1	.0114	.0409	
Error	16	.2782		
Distance	2	.2905	1.2554	
Pers. x Dist.	2	.4770	2.0612	
Error	32	.2314		
Room x Dist.	2	.0553	.3938	
Pers. x Rm. x Dist.	2	.1942	1.3831	
Error	32	.1404		

DISCUSSION
(Design I)

The specific objectives of this study were to: (1) implement an experimental model appropriate to both the conditioning of verbalizations and the counseling interview; (2) train counselors to act as social reinforcers within the counseling interview and to offer appropriate discriminative stimuli under the conditioning paradigm; (3) empirically examine the effect of distance, room size and personality on the conditioning of verbalization - positive affective self-reference statements. There is little doubt that the first two objectives were successfully met. An experimental model appropriate to both the conditioning of verbalization and the counseling interview was successfully implemented, and a counselor was trained to successfully act as a social reinforcer. Of the eighteen subjects interviewed not one left the session before the completion of the interview. Considering the six interruptions to rearrange the

room and distance factors during each interview, it is surprising that some subjects did not abort. It would indicate that subjects were, in fact, finding the counselor responsive to them and therefore, tolerated the interuptions. Also, many of the awareness checks which subjects were asked to respond to indicated that subjects did feel that the counselor was responsive to them. Words such as "understanding" and "good listener" were used to describe the counselor. Both labels are often used to describe an effective counselor. However, it must be noted that the subjects were receiving remuneration for their participation, and this factor may have been more reinforcing to their involvement than the behavior of the counselor. Further research should be conducted to compare the results of studies using paid subjects with studies using non-paid subjects.

As to the question of whether a counselor was trained to offer appropriate discriminative stimuli which brought the subjects verbal behavior under the control of the interviewer there is little doubt. The counselor was successfully trained to emit verbal reinforcements contingent upon the subject's emission of the specific response class being studied. These results are consistent with those of Crowley (1970), Kennedy and Zimmer (1968), and Pepyne (1968).

Finally, regarding the question of the effect of certain spatial and personality variables and the conditioning of verbalizations and paralinguistic behaviors, the results are mixed. It would appear that room size did have an effect on the conditionability of PASR statements and did generalize to the total verbal output of the subjects as measured by TNOW. The evidence indicated that subjects were more amenable to conditioning in the larger room than in the smaller room. The results raise a question of whether or not subjects felt less threatened in a larger room than smaller room and, therefore, were more easily conditioned. The results indicate that spatial environments affect the outcome of counseling interviews and should be considered by practicing counselors as an important variable of their effectiveness.

The main effects of personality and distance in this study did not demonstrate a measureable effect on the verbal behavior of the subjects. However, the interaction of personality and distance as measured by the proportion of PASR statements variable did demonstrate a significant effect. It would appear that at the 36 inch and 60 inch distances both the suspecting and trustful personality groups' conditioning rates did not differ significantly. However, at the 48 inch distance the trustful group seemed more amenable to conditioning than did the suspecting group.

Although tentative, the results would indicate that certain personality types do respond differentially to conditioning at specific distances. Before specific conclusions

can be drawn, it is recommended that further research be conducted examining the relationship between personality and distance as they relate to conditioning.

METHODOLOGY
(Design II)

Subjects

Subjects in Study II of this project consisted of 54 undergraduate males enrolled in the University of Massachusetts. Subjects were recruited via newspaper advertisements in the University newspaper and were remunerated at the rate of$2.00 per hour. An initial subject pool of 60 was obtained, but four subjects were lost to the experiment due to reasons unassociated to the experimental treatment per se. Two subjects were lost due to the fact that the recorded interviews were inadvertently erased by one of the author's colleagues. A third subject was lost due to failure of the tape recorder. And a final subject was lost because the clerical assistant could not understand and transcribe his speech which was heavily influenced by a foreign accent.

Apparatus

The apparatus employed in Study II was identical to that already described for Study I. The description of the timing clock and signal lights used to cue counselor-experimenter response was exactly as described for Study I. The only variance from Study I was the fact that the present study was conducted at the University of Massachusetts and the physical setting was, therefore slightly different.

The experimental rooms consisted of a large room (144 sq. ft.) and a small room (82.5 sq. ft.) both of which were connected to a control room manned by a technician. All tape recording and timing of the cueing device was controlled from the technicians room which was adjacent to the experimental rooms. With the exception of room size, the two rooms were virtually similar. The same type furniture was employed in each room, which consisted of two desk chairs and a small desk. The rooms contained no other furniture or decoration.

Experimenter and Training

The experimenter exployed in this study was male - a Doctoral student in counseling at the University of Massachusetts School of Education. The experimenter had several years of clinical experience and was at the time of the study lacking only the completion of his dissertation. The training of the experimenter to emit "mmhmm" and paraphrase reponses in conjunction with the demands of the operant paradigm

was vitually identical to that described for Study I. The training procedure required approximately 10 to 12 hours.

Design and Procedure

The design of Study II consisted of a 2 x 2 x 3 x 2 mixed factorial analysis of variance set-up. The first three factors were between-group factors, while the last represented a repeated measures factor of conditioning and extinction periods in which each subject participated. The first factor appearing at two levels represented a personality factor denoted as suspicious--trustful (Cattell's Factor L of the 16 Personality Factor Test, 1962). The second factor represented two levels of room size (large vs small), and the third between factor represented a furniture arrangement dimension at three levels. The three furniture arrangements used in Study II consisted of: (1) face to face, no desk intervening; (2) across the corner of the desk, experimenter and subject seated at an angle of 45 degrees; and (3) face to face, with a desk intervening between experimenter and subject. The repeated measures factor represents the operant paradigm with subject scores obtained on each of the conditioning and extinction stages of the paradigm. Actual raw data at each of these stages consisted of the subjects score for that stage minus his obtained baseline score. For example, the conditioning score for a given subject represented the difference between his frequency of self-reference statements between conditioning and baseline periods. A second score was derived utilizing the subject's extinction and baseline scores.

The procedure of the study was kept as similar as possible for all subjects. Subjects were randomly assigned to only one of the combinations of room size and furniture arrangement. Similarly subjects were placed in either the suspicious or trustful group, depending on their score on Factor L of the 16PF. Hence no subject was classified in more than one personality group, nor any subject interviewed in more than one size room or more than one of the three furniture arrangements. Hence the study represented a completely randomized design with respect to the between factors.

Prior to the interviewing of a subject, he was met by the author and introduced to the experimenter, who was already located in the appropriate room size--furniture arrangement combination. For the first few minutes of the interview the experimenter engaged in a "Warm up" period in an attempt to allow the subject to acclimate to the experimental situation During this warm up period, the experimenter queried the subject about his educational background and current status at the university.

Following the short warm up period which usually lasted about 3 to 5 minutes, the experimenter explained the nature

of the task to the subject, indicating that he could talk about "anything he liked" and that the experimenter would respond to him but could not answer any direct questions. The experimenter answered any subject questions which would not reveal the nature of the experiment at this time. If the subject had no questions, the experimenter instructed him to "go ahead and talk about anything you like". At this point the technician in the adjacent room began tape recording the interview and activated the timing clock and cueing lights. The first five minutes of the interview consisted of the free operant period in which the experimenter's responses were noncontingent upon subject verbalization, but contingent upon a completely random schedule controlled by the technician. The second five-minute period consisted of the conditioning period during which the experimenter's responses were contingent upon the emission of the specified response class (positive affective self-reference statements) emitted by the subject. The third and final 5-minute period consisted of an extinction period in which the experimenter reverted to the completely random, noncontingent response schedule employed during the baseline period. The nature of the experimenter's responses was identical to that described for Study I and will not be reiterated here.

At the conclusion of the interview, the subject was asked to respond to the 16PF and was briefly interviewed by the author to ascertain the extent to which they became aware of the true nature of the experiment. No subject had identified that the experiment dealt with conditioning, and furthermore, no subject correctly identified that the arrangement of the furniture or room size had any bearing whatsoever on the experiment or their performance. The typical response to the questioning revealed suspicions that the experiment was designed to assess student attitudes toward the university. The final stage of the procedure entailed a debriefing of the subject by the author and payment of the subject for his time.

Scoring of Criterion Variable

The criteria employed in Study II and the manner in which they were scored was exactly the same as previously described for Study I. The dependent variables of frequency of affective self-reference statements, the total number of words uttered by the subject in each period, and the duration of subject speech were recorded in the manner described in an earlier section of this report. The data were transferred to IBM cards and submitted to analysis.

RESULTS
(Design II)

Results presented here consist of a series of 2 x 2 x 3 x 2 mixed factorial analyses of variance across three depen-

dent variables: 1) Frequency of positive affective self-reference statements; 2) total number of words uttered by the subject during the interview segments; and 3) duration of utterance for each subject during the interview periods.

The final two dependent variables were not part of the original intention of this project, but are included as a reflection of the generalization of the conditioning process to certain nonlinguistic variables of potential importance to the counseling endeavor.

Due to the fact that unequal and disproportionate cell frequencies existed in Study II, an unweighted means solution to the analysis of variance was employed. The results of the analysis of the frequency of self-reference statements is summarized in Table 10.

Table 10

Analysis of Variance of Frequency of
Positive Affective Self-Reference Statements

Source	df	MS	F	P
Between Ss	49			
Rooms (A)	1	18.19		
Arrangements (B)	2	3.22		
Personality (D)	1	.40		
AB	2	1.81		
AD	1	.00		
BD	2	49.71	1.06	
ABD	2	7.57		
Subjects within ABD	38	46.87		
Within Ss	50			
Conditioning (C)	1	42.83	6.85	<.05
AC	1	59.33	9.49	<.01
BC	2	25.24	4.04	<.05
CD	1	69.31	11.09	<.01
ABC	2	19.20	3.07	
ACD	1	.32		
BCD	2	66.09	10.57	<.01
ABCD	2	18.72	3.00	
C x Ss within ABD	38	6.25		

Inspection of Table 10 indicates that no significant results were obtained for the main effects of rooms, arrangements or personality classification. The main effect of conditioning, however, proved significant ($p<.05$). More

importantly, however, several interactions reached significance and supercede any interpretation of main effects which may have accrued. The rooms x conditioning interaction ($p<.05$) suggests that conditioning is most powerful in the large room. Inspection of Figure 5 reveals that the large room produced higher levels of conditioning of self-reference statements, and at the same time produced more marked levels of extinction than did the small room. Levels of responding in the small room remained relatively constant despite the conditioning--extinction period distinction.

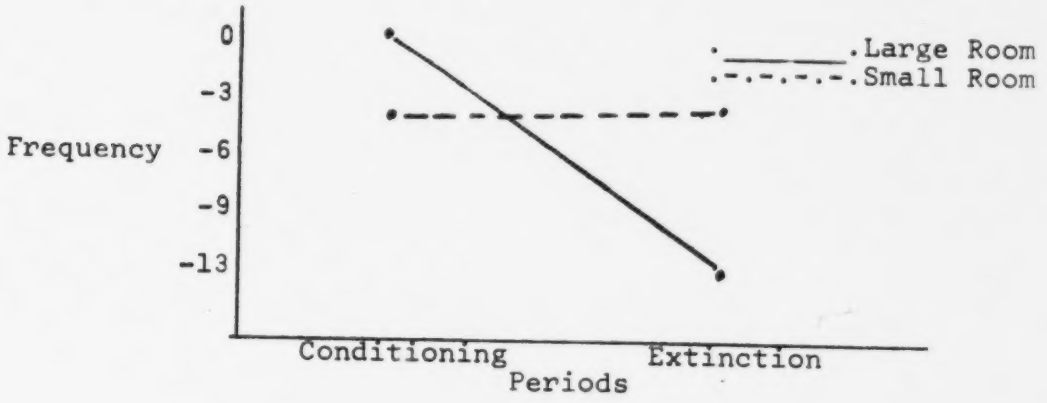

Figure 5: Interaction of Room size x conditioning

Similarly, the arrangements x conditioning interaction indicates that conditioning is differentially effective depending on the nature of the furniture arrangement employed. Figure 6 depicts this interaction. It would seem apparent that the across the desk furniture arrangement is clearly superior to either the face to face arrangement or the cross the corner of the desk arrangement. In the across the desk condition

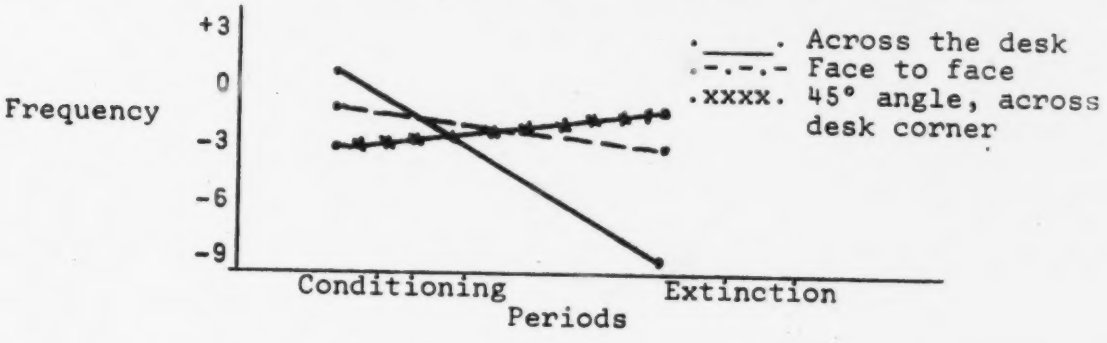

Figure 6: Interaction of Furniture Arrangements x Conditioning.

subjects clearly conditioned more readily and extinquished more effectively than in either of the other two conditions which seem to reflect a more steady state of affairs. In fact with regard to the across the corner of the desk arrangement, there is some question whether the conditioning paradigm had any effect whatsoever.

In like fashion the personality x conditioning interaction ($p<.01$) suggests that certain personality types are indeed more susceptible to the operant paradigm than are others. Figure 7 depicts the nature of this interaction. It appears that the less trusting subjects were more conditionable and were more effectively influenced by the conditioning paradigm than were the more trusting subjects. This interaction and its interpretation, however, must be superceeded by the fact that the arrangements x personality x conditioning interaction also achieved significance ($p<.01$).

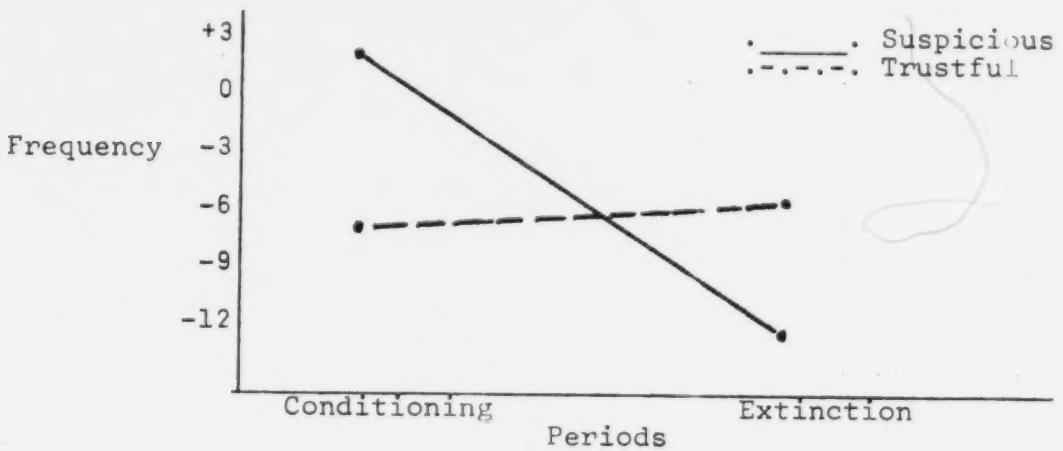

Figure 7: Interaction of Personality x Conditioning

Figure 8 represents the arrangements x personality x conditioning interaction. Regarding conditionability, the less trusting group demonstrated a uniform pattern of conditionability across arrangements, although the absolute level of that conditionability was slightly different for the three arrangements. Within the trusting group however, the pattern is not nearly so uniform. The interpretation of this interaction centers heavily upon the differences in conditionability produced by the across the desk arrangements as opposed to the face to face or across the corner of the desk arrangements. In the latter two arrangements the paradigm had little effect in bringing under control the self-reference statements of the trusting group. However, the across the desk arrangement proved highly effective in enhancing the conditioning behavior of these same subjects.

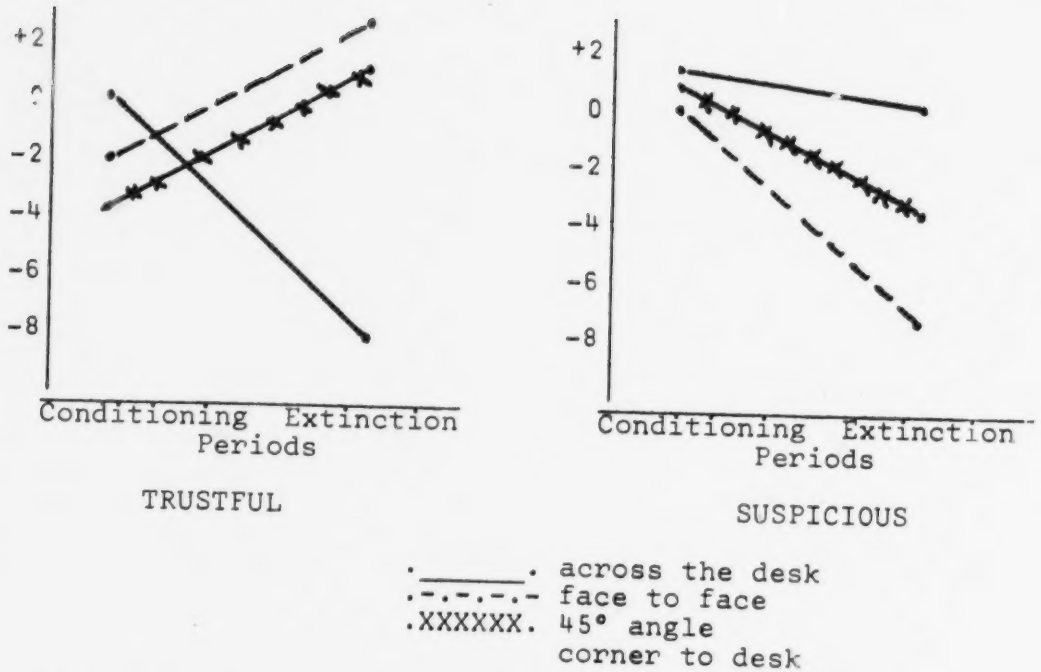

Figure 8: Personality x arrangement x conditioning interaction.

It would appear that for suspecting subjects, virtually any of the three arrangements tested does not interfere with the conditioning process. However, within the trusting group, arrangements which are across the corner of a desk, or face to face with no desk intervening severly limit the effectiveness of the operant paradigm.

Although not part of the original proposal for this study, two other variables were collected and analyzed in the same manner as just described for positive affective self-reference statements. The dependent variables examined here are most readily classified as nonlinguistic or paralinguistic variables. Their analysis in this study stems from a belief in the contention of Krasner (1965) that if verbal conditioning is to be at all demonstrated to be a useful and viable treatment technique then generalization must occur at two levels: outside of the consulting room, and to other behaviors related to the target behavior in question. Generalization to other behaviors was assessed here.

The first paralinguistic variable submitted to analysis is the Total Word Count of each subject in the various conditions of the study. Results of this analysis have been presented in Table 11.

Table 11

Analysis of Variance of Total Length of Utterance

Source	df	MS	F	P
Between Ss	49			
Rooms (A)	1	782.63		
Arrangements (B)	2	54405.64	2.36	
Personality (D)	1	21887.95		
AB	2	35646.29	1.5	
AD	1	228281.31	9.88	<01
BD	2	22429.47		
ABD	2	64648.93	2.80	
Ss within ABD	38	23106.99		
Within Ss	50			
Conditioning (C)	1	136568.47	20.46	<.001
AC	1	222.28		
BC	2	6608.55	3.76	
CD	1	25092.49	2.91	
ABC	2	19393.04		
ACD	1	2771.22		
BCD	2	3923.06		
ABCD	2	1357.62		
C x Ss within ABD	38	6674.63		

No significant differences occured for any of the between groups main effects in this analysis. More importantly however, the main effect of conditioning proved highly significant, ($p<.001$). The emission of total words was definitely brought under control of the operant paradigm. Since the study was aimed at the conditioning of self-reference statements, the significant conditioning effect presented here is clearly an indication of the generalization of the conditioning effect. In addition to the significant conditioning effect, the rooms x personality interaction also reached significance ($p<.005$).

Figure 9 depicts the nature of this interaction. Regarding an average of the total number of words emitted by subject groups, the interaction is mainly explained by a reversal of the effects of room size on verbal output, depending on the personality classification of the subject. For the suspecting group, the small room was much more effective in elevating verbal output, while the large room

severely depressed total word count. On the other hand, the reverse held true for the trusting group. Subjects who are more trusting emit a greater volume of words in the large room than they do in the small room. No other interactions reached significance for the variable of total word count.

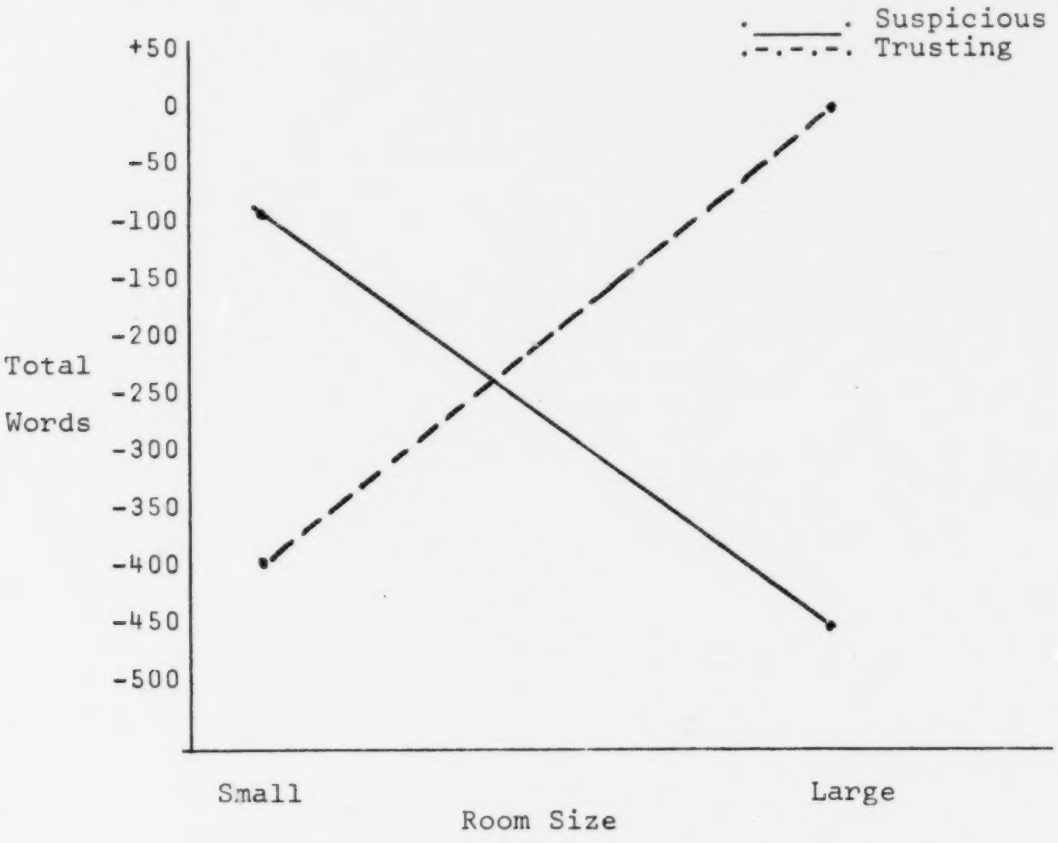

Figure 9: Room x personality interaction for total word count.

A second paralinguistic variable of duration of utterance was also analyzed in this study. The results of this analysis have been presented in Table 12.

Inspection of Table 12 again reveals that the main effects of room size, furniture arrangements and personality had no effect on the duration of subject speech. However, the conditioning effect again proved highly significant ($p<.001$). It seems clear that subject duration of speech was brought under the control of the conditioning paradigm and hence is another case where generalization to paralinguistic behaviors of the subject seems apparent.

Table 12

Analysis of Variance of Duration of Utterance

Source	df	MS	F	P
Between Ss	49			
Rooms (A)	1	627.11		
Arrangements (B)	2	3176.98		
Personality (D)	1	3869.72		
AB	2	2502.35		
AD	1	15734.77	8.73	<.01
BD	2	5361.75		
ABD	2	5238.15		
Subjects within ABD	38	1803.15		
Within Ss	50			
Conditioning (C)	1	4797.08	16.04	<.001
AC	1	186.68		
BC	2	1020.38	3.41	<.05
CD	1	3894.19	13.02	<.001
ABC	2	1150.95	3.85	<.05
ACD	1	205.44		
BCD	2	61.63		
ABCD	2	724.82		
C x subjects within ABD	38	299.08		

Four of the interactions involving main effects reached significance in this analysis. Of the between group factors the room size x personality interaction reached significance (p .01). The interaction shown in Figure 10 shows this relationship. As was the case with total word count the suspecting subjects revealed the longest duration of speech in the small room and their verbal rate was severely curtailed by the large room. Conversely the trusting subjects showed the greatest duration of speech in the large room while the small room depressed their rate.

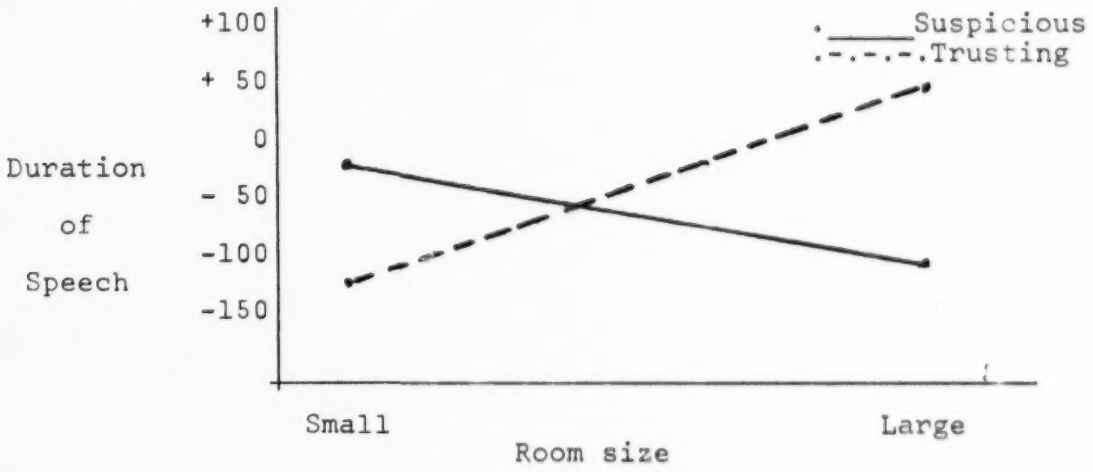

Figure 10: Room x personality interaction for Duration of speech.

While the conditioning main effect proved a significant effect in this analysis, the interpretation of generalization of conditioning to duration of speech must be altered because the conditioning main effect is involved in certain higher order interactions. The significant arrangements x conditioning interaction suggests that arrangements did have some effect on conditioning, but that its nature is dependent on the stage of the operant paradigm examined. Figure 11 demonstrates the nature of this interaction. Regarding the effect

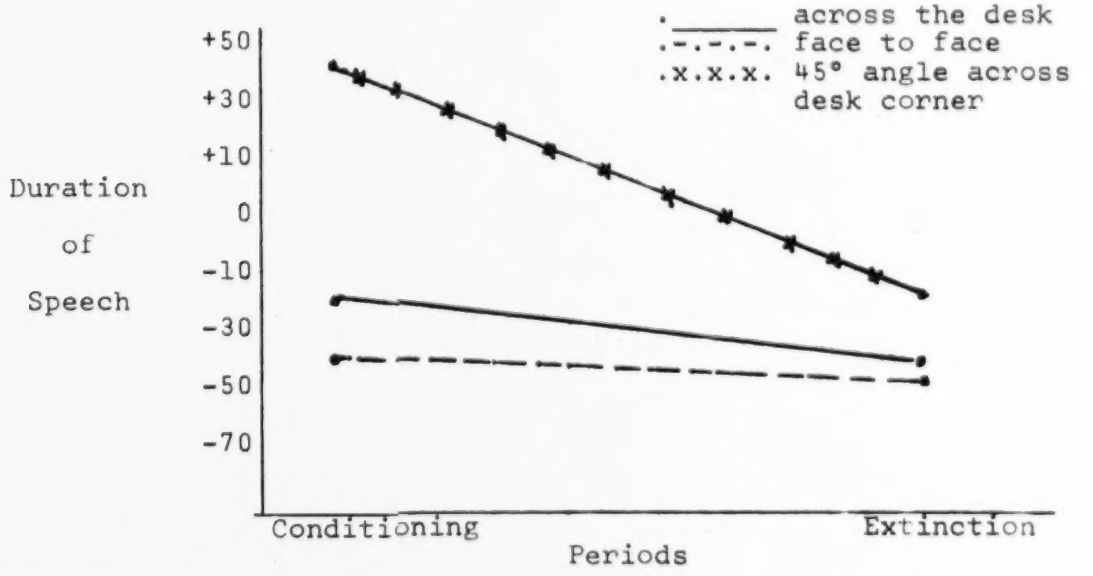

Figure 11: Arrangements x conditioning interaction for duration of speech.

of the operant paradigm from the conditioning to extinction periods the furniture arrangements which has subject and experimenter seated at a 45 degree angle across the corner of a desk is definitely the most efficacious in the generalization of conditioning effect to the duration of subject speech, and represents a move from high levels of responding during the conditioning to very low levels of responding during extinction. Neither of the other two arrangements of face to face with no desk intervening, or across the desk were as potent in influencing the generalization process.

The personality x conditioning interaction ($p<.01$) as shown in Figure 12 is explained mainly by differences between suspecting and trustful subject groups at the extinction phase while no appreciable differences existed between the two groups at the conditioning phase of the paradigm. In essence the suspecting group showed the predicted influence of the conditioning paradigm from conditioning to extinction periods. For the trusting group, the extinction of duration of speech patterns did not occur.

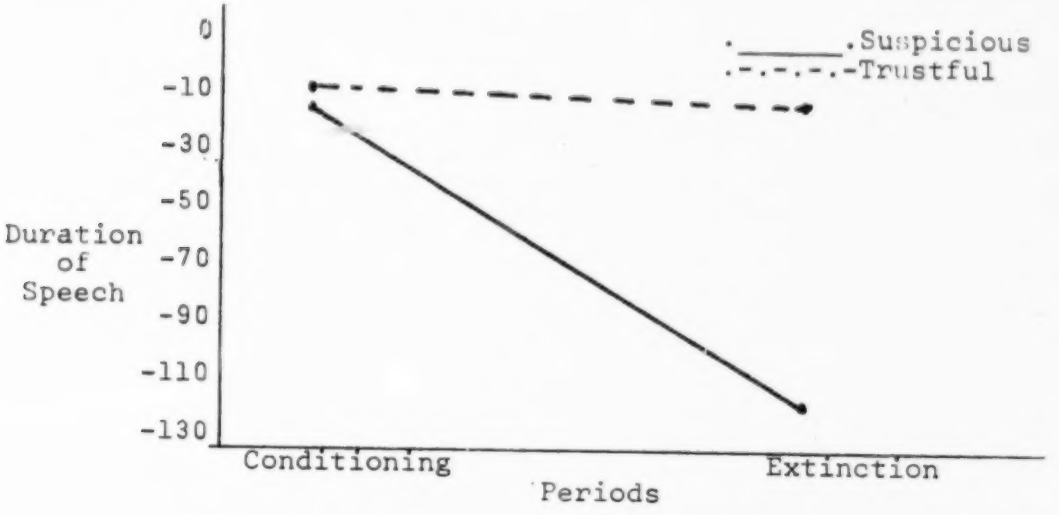

Figure 12: Personality x conditioning interaction for duration of speech.

The final interaction involving the duration of speech variable is that between room size, arrangements, and conditioning periods.

It would seem apparent from examination of Figure 13 that the nature of the interaction is largely explained by examining the role of the across the desk arrangement as one moves from the small to the large room. For both room sizes, the across the corner of the desk seems to be most facilitative of the generalization of duration of speech patterns.

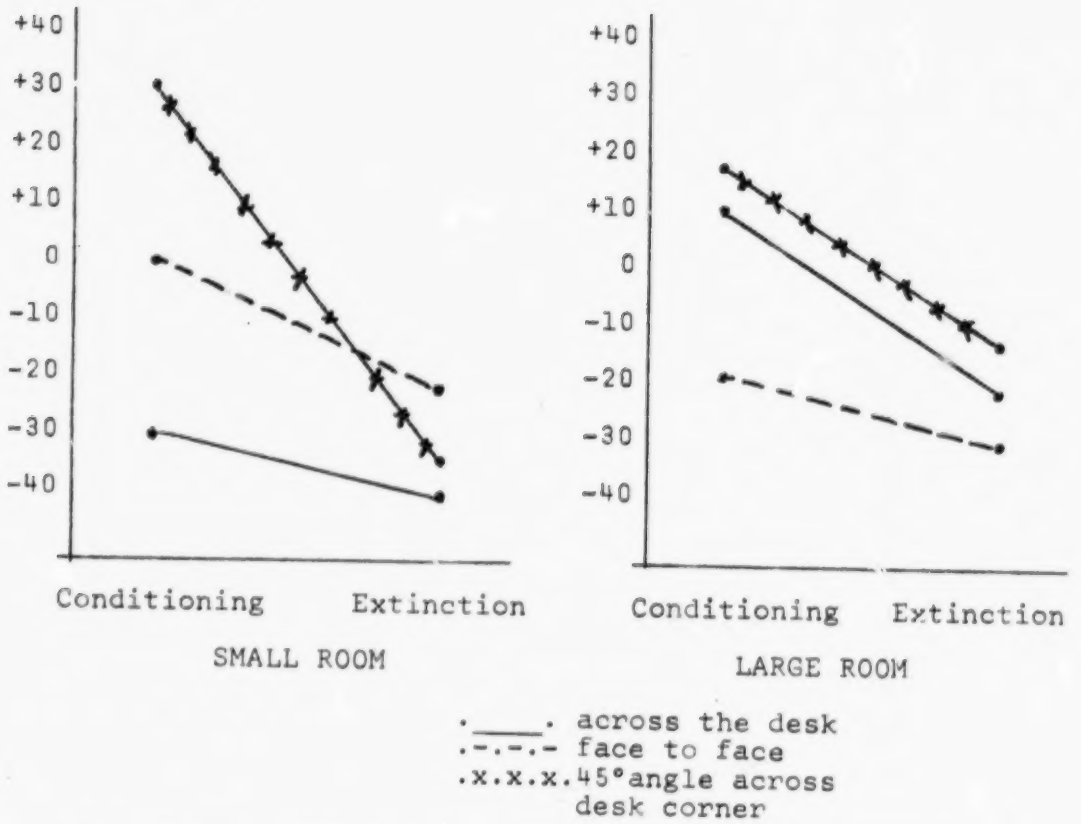

Figure 13: Room size x arrangement x conditioning interaction for duration of speech.

However, as one examines the across the desk arrangement, it appears to become considerably more effective in the promotion of lengthier duration in the large room than in the small room. In fact there appears to be little difference between these two conditions in the large room while the discrepancy is quite marked in the small room. With respect to the duration of speech variable, none of the remaining factors accounted for a significant amount of the variability in the data.

DISCUSSION
(Design II)

The central purpose of Study II in this project was to examine the influence of certain spatial characteristics of the physical environment and the personality of the subject on the conditionability of positive affective self-reference statements in a quasi-counseling interview situation. Positive self-reference statements have importance to the area of counseling and helping relationships and were chosen for

this study to provide a relevant dependent variable with which to work. Although the study conducted here clearly indicates that self-reference statements can indeed be conditioned, this is of no especial consequence. That self-reference statements are amenable to change via the operant paradigm is already a fairly well established fact (Kennedy and Zimmer, 1968; Hoffnung, 1969; Krasner, 1965). What does seem of importance however, is the fact that the process of conditioning of self-reference statements is significantly altered, in some cases markedly so, by certain characteristics of the physical environment in which the conditioning takes place. Furthermore, the personality characteristics of the subject, although measured in a very limited scale in this study, also affect the course of conditioning. It is to a discussion of these results that we turn at this point.

Although none of the main effects of room size, furniture arrangement or personality type significantly altered the conditionability of subjects in this study, several interactions which reached significance would indicate that they do indeed have an effect, and that the effect is a more complex phenomenon. The rooms x conditioning interaction (Figure 5) markedly illustrates the effect of room size on conditioning. It seems apparent that larger rooms are indeed more conducive to effective conditioning than are smaller rooms. Although the rooms in this study were a fixed effect factor, it does not seem unwarranted to look upon the effect of room size on some sort of linear continuum. Although room size has been investigated in the past as a determinant of several human behavioral outcomes, little has been done to examine its impact on learning behavior. Past studies by Dumont (1971), and Desor (1972) are instructive in that they have examined room size and its impact upon certain aspects of verbal variables and the placement of people within defined spaces, respectively. The present study extends the examination of room size to a learning variable.

Regarding room sizes the results presented here strongly suggest that the large room is superior in sustaining conditionability. It is highly likely that the small room gives the subject a feeling of "crowding", generates a certain amount of interpersonal anxiety, and hence interferes with the conditioning-learning process. It would seem appropriate under the present circumstances to look upon small room size as an inhibitory factor to the conditioning process. That crowding is an anxiety producing state of affairs and leads to a wide range of maladaptive behaviors is a fairly well established fact in the animal literature (Calhoun, 1962; Christian, 1961). Within the human literature, the strong suggestion that crowding leads to debilitative and often pathological behaviors among individuals is not without support (Harrington, 1965; Chombart de Lawe, 1959; Hutt and Vaizey, 1966; Schmitt, 1966, LeVine, 1962).

The argument that the small room leads to heightened anxiety which interferes with the learning process is further substantiated by studies by Evans (1972) and Baxter and Deanovich (1970). Evans found that GSR varied systematically with reductions in distance between subject and experimenter. Baxter and Deanovich, using a more psychological indicator of anxiety, concluded that inappropriate crowding significantly increased measures of perceived anxiety. Dingus and Oetting (1972) have looked at one form of crowding in the counseling interview situation and clearly demonstrate that closer interaction distances lead to heightened anxiety of the interviewee.

The interpretation of the small room producing increased levels of anxiety and hence inhibiting the conditioning process is further supported by an interpretation of the arrangements x conditioning interaction found in this study. In this interaction it is evident that the across the desk furniture arrangement also leads to a more effective conditioning procedure. It is entirely possible that the across the desk arrangement is the more socially protected arrangement and does not generate the amount of anxiety in the subject that may occur in the face to face condition or the across the corner of the desk arrangement. Again the latter two arrangements may well inhibit the conditioning process due to the generation of excessive amounts of anxiety which are debilitative to learning.

There are several implications which might be drawn from the present study, for the specific counseling interaction, as well as the more general learning environment. Although counselors have been aware for some time that the environment has marked effects upon human behavior, little has been done to specifically ascertain what the effect of certain fixed and semi-fixed features of the environment is on learning. Virtually no one would deny that counseling is very much a learning process. Although the present study dealt with only one verbal response class, it is conceivable that the conditions investigated here pervade all learning that takes place in the dyadic interview situation. The evidence presented here clearly suggests that such learning is going to be markedly inhibited by certain environmental features. Small rooms and across the corner of the desk or face to face furniture arrangements may well be counterproductive to the aim of both the client and the counselor. It is ironic that many of the counseling "cubicles" observed by this author at several counseling centers across the country more closely approximate the small room in this study than the large room. Furthermore, counselors show a distinct preference for furniture arrangements (Haase and DiMattia, 1970) which are not only at odds with the preferences of clients, but in light of the evidence presented here may well be inhibitory to the learning process. It is interesting to note that in the Haase and DiMattia (1970) study the clients as well tended to prefer seating arrangements, vis-a-vis the counselor, which

are contrary to the arrangements which proved most effective in the present study. This seems to illuminate an oft found principle that peoples preferences and behavior are often contradictory.

Although it must remain in the realm of speculation, it is interesting to ruminate about the effect of learning environments in general. Although the study reported here does not approximate most classroom environments it would be most interesting to examine the variables investigated here on classroom learning. Research on learning environments to this point has remained either highly nonspecific, or has focused on the psychological climate of the environment (Harvard Educational Review, 1969; Sommer, 1969; Barclay, 1967).

The issue attended to in the analyses of the two paralinguistic variables examined in this study is right at the very heart of the utility of conditioning therapies, or conditioning technique and their use in counseling and psychotherapy. If indeed a conditioning therapy (or any therapy for that matter) is to be of general utility there must be some demonstration of generalization to the external environment. Furthermore, for a conditioning technique to be effective it must as well generalize to other behaviors in the repertoire of the client. Paralinguistic behaviors on the part of the subject or client might be an important class of behaviors in which one might expect to see generalization of the conditioning process. It has been shown elsewhere that paralinguistic behaviors are indeed important to the conduct of human interactions, (Duncan, 1969; Davitz, 1964; Tepper, 1972). Interesting recent evidence further indicates that interpersonal perception and interpersonal warmth are largely dependent upon the emission of certain nonlinguistic cues (Bayes, 1972). If we can take the argument that many clients who seek counseling and psychotherapy are behaviorally deficient in such "interpersonnally attracting" cues, it would seem important to focus on changes in behavior at the nonlinguistic as well as linguistic level of behavior. Furthermore, within the verbal operant conditioning paradigm, it would be most instructive to examine the transfer of conditioning to such nonlinguistic cues. The present study has extended into this direction.

Two nonlinguistic cues were examined in this study--verbal output, or volume of verbal output, and duration of utterance on the part of the subject. It should be remembered that the conditioning paradigm was not oriented to these behaviors, but rather strictly to the conditioning of verbalizations. The results of the two analyses of total word count and duration of subject speech manifestly demonstrate that generalization of conditioning did take place. The significant conditioning effects of both total word count and duration of speech demonstrate that these behaviors, as well as the verbal response class, were brought under control

of the operant paradigm. As was the case with the self-reference statements, however, several of the interactions between independent variables proved most illuminating.

In addition to the conditioning effect, there proved a significant effect on total verbal output as a function of the room by personality interaction (Figure 9). Greater verbal output is obtained in the large room for trusting subjects and in the small room for more suspicious subjects. This finding may have some implications for initial organization of the counseling encounter. One of the primary tenents of the counseling interview is to get the client to verbalize. The interaction between room size and personality type here suggests that different environments might facilitate this outcome depending on the nature of the client. Smaller rooms may be more conducive to verbalization on the part of suspecting clients, while large rooms would facilitate verbalizations of more trusting clients.

Regarding the duration of speech variable, an almost identical interaction between room size and personality type resulted (Figure 10). The large room again facilitated duration of speech for the trusting subjects while the small room depressed duration of speech for this group. The reverse situation obtained for the suspicious group. If we can look upon the combination of verbal output and duration of speech as a verbal activity dimension, it seems apparent that room size and personality have great bearing on the occurance of these behaviors. It would behoove counselors, or any individual involved in the dyadic interview situation concerned with learning, to note that such learning is very much dependent upon the impingment of certain physical parameters in the physical invironment.

The most illuminating interaction bearing upon the nature of the generalization of conditioning to duration of speech is that which involves room size, furniture arrangement, and the conditioning to extinction period dimension. Reference to Figure 13 indicates that in the large room the nature of generalization of conditioning to duration of speech is effected in a similar manner by all three furniture arrangements. The essential difference between arrangements in the large room is the absolute level of response rate, with the across the corner of the desk being most efficacious. Similarly in the small room a pattern reflecting the importance of the across the corner of the desk arrangement is evident. However, the face to face arrangement which had some cogency in the large room is relegated to a position of virtual unimportance when examined in the context of the small room. One could conjecture that the face to face arrangement with no furniture intervening had greater impact in the large room because the increased size of the room might allow for a face to face arrangement without the impending feeling of crowding. A balance of effects might have occured here.

However, in the small room, a certain feeling of crowding due to room size may have been merely exacerbated by the face to face arrangement and this is reflected in the relative ineffectiveness of that arrangement. It should be held in mind however, that the across the corner of the desk arrangement is most effective in either room.

INTEGRATED DISCUSSION AND CONCLUSION

The central objective of the project described here was to empirically examine the effect of fixed-feature, semi-fixed feature, and personal space on the conditioning of Verbalization in a counseling-like interview situation. The two studies reported here have demonstrated that certain aspects of the physical environment do indeed significantly influence the conditioning of a discrete verbal response class--positive affective self-reference statements. Stated somewhat differently it can be concluded on the basis of the results presented here that certain features of the physical spatial environment proved inhibitory to the conditioning of verbalizations. The finding in both studies that room size is effective in altering conditioning of verbal responses is particularly noteworthy because each study represents an independent and systematic replication of the other. The fact that both studies lead to similar conclusions regarding the effect of room size on conditionability, when each was conducted in a slightly different fashion, on an independent and perhaps qualatiatively different sample, and in two disparate geographical locations would suggest that the phenomenon is relatively stable. The fact that smaller rooms prove inhibitory to the conditioning process is a finding which may have utility for the further understanding of conditioning of verbalizations in particular, and as a relatively useful piece of information about the influence of room size on at least one aspect of human behavior in the more general sense.

Implications of these findings for the practice of counseling have also become more clear. If indeed counseling and psychotherapy are heavily loaded with a learning component, and if one is willing to accept the proposition that the operant paradigm is an adequately explanatory means of conceptualizing that process, then the results presented here have some direct implications for the practice of counseling.

The situation reveals itself as one in which the counselor must be aware of certain environmental contingencies which impinge upon the ongoing process. The findings that room size, furniture arrangement and subject personality type interact significantly to produce differing types of verbal behavior should have direct implications for counselor behavior.

In the more general sense these studies might reflect what Wohwill (1970) calls for in terms of psychological research which focuses on the effect of the physical environment on myriad aspects of human behavior. This study has dealt with only a small aspect of that environmental milieu.

While it was an ancillary purpose of these studies, the demonstration that conditioning of verbalization generalizes to other behaviors in the subjects repertoire would seem of some importance. The literature has been sketchy on this point with conflicting results. The present study, however, modestly, might aid in the understanding of changes in a wide range of behaviors which may take place as a function of the conditioning-learning process. The choice of certain nonlinguistic behaviors examined in these studies is perhaps a reflection of the authors' conviction that nonlinguistic behaviors have considerable importance to the counseling endeavor and to human interaction. Their further study is certainly warranted.

The results of the project reported here indicate that further research into the effects of the physical spatial environment may have importance for the understanding of human behavior. The variables examined here are only a few of the potentially important aspects of the environment which may lead to a greater understanding of human interaction.

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Appendix A

16 PF - Factor L

1. I smile to myself at the big difference between what people do and what they say they do.	Yes	Occasionally	No
2. When I plan something, I like to do so quite alone, without any outside help.	Yes	Occasionally	No
3. If a neighbor cheats me over small things, I would rather humor him than show him up.	Yes	Occasionally	No
4. I think most witnesses tell the truth even if it becomes embarrassing.	Yes	Occasionally	No
5. I am always a sound sleeper, never walking or talking or my sleep.	Yes	In Between	No
6. I think many foreign countries are actually more friendly than we suppose.	Yes	Sometimes	No
7. I have to stop myself from getting too involved in trying to straighten out other people's problems.	Yes	Sometimes	No
8. I think every story and movie should remind us of a moral.	Yes	Sometimes	No
9. I suspect that people who act friendly to me can be disloyal behind my back: (a) yes, generally, (b) occasionally (c) no, rarely	a	b	c

Appendix B

Awareness Check

INSTRUCTIONS:

We are interested in gaining your impressions of the study in which you have just participated. Would you write out your answers to the questions below in the space provided. (You may use the back of the page if necessary).

1. What do you think was the purpose of this interview?

2. What evidence do you have for this?

3. Was there anything you noticed about either yourself or the interviewer during the Interview?